

Implementation Status of RIS in Russia



**53-d session of the Working Party on the Standardization
of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3)
Geneva, 27-29 June 2018**

RIS concept itself as well as attendant terminology for the services and applications have not been officially approved by the Ministry of Transport of the Russian Federation. As of today, there are no adopted RIS regulations or any RIS implementation plans, similar to the European IRIS.

Nevertheless, Russia supports RIS related UNECE resolutions in the framework of the Working Party on Inland Water Transport (SC.3)

Mainly traffic related services are implemented and maintained by the state-operated and state-funded IWW Administrations. Therefore, implementation process is generally smooth.

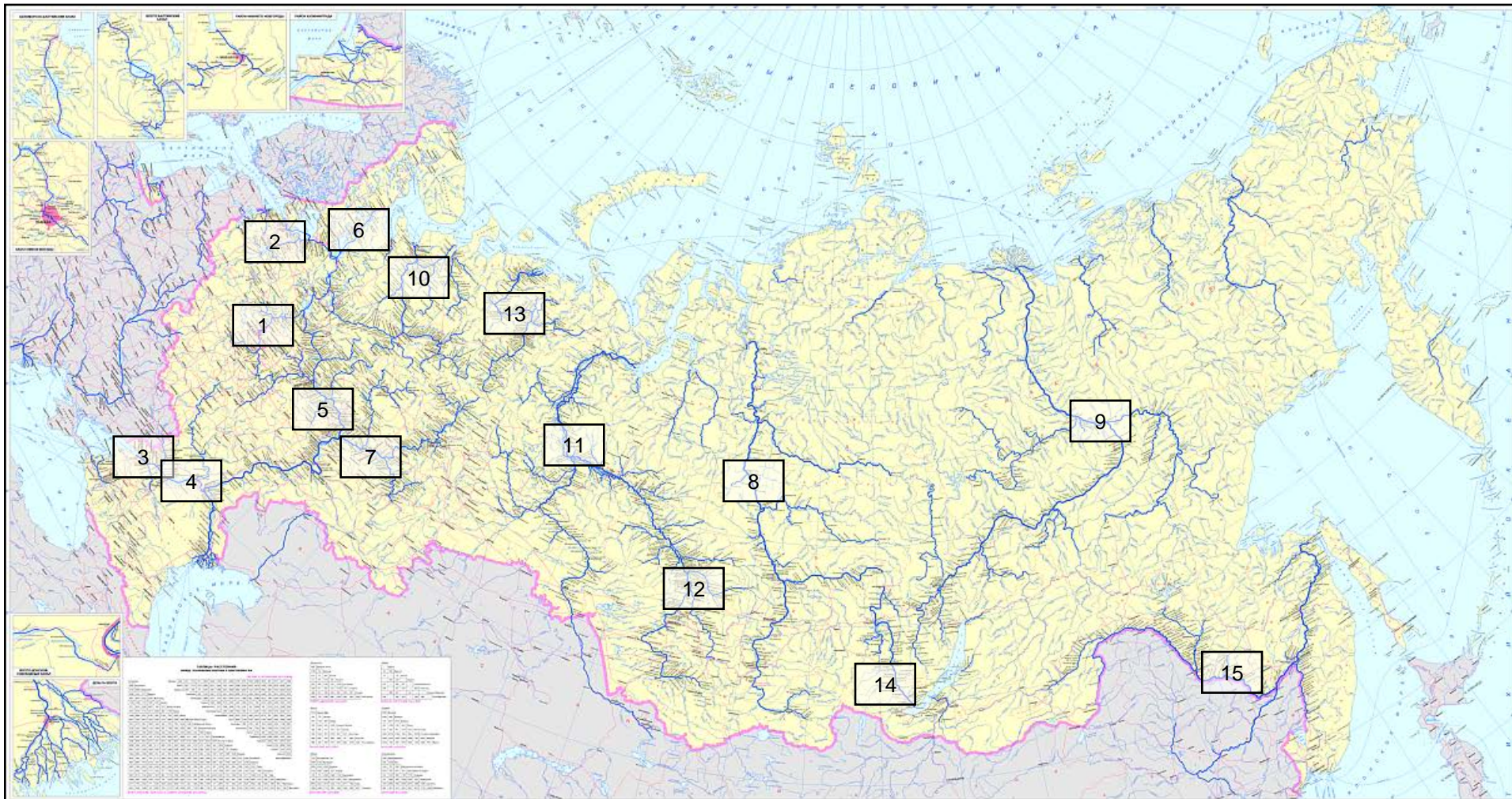
Mainly transport related services, as a rule, are implemented by private bodies, such as shipping companies, port and terminal authorities etc. Process depends on good will and desire for funding. Obviously, nowadays it's hard to reckon on such good will, thus transport related services are not generally implemented in Russia.

The services defined as “Information for law enforcement”, “Statistics” and “Waterway charges and harbour dues” are implemented and maintained in Russia beyond the framework of RIS concept.

Key RIS technologies - Inland ECDIS and Inland AIS - are being step-by-step implemented. Notices to Skippers and Electronic Ship Reporting are being investigated and tested.

INLAND WATERWAYS OF THE RUSSIAN FEDERATION

15 inland waterway waterways



1. Moscow channel
2. Volga-Baltic waterway
3. Azov-Don waterway
4. Volga-Don waterway
5. Volga waterway

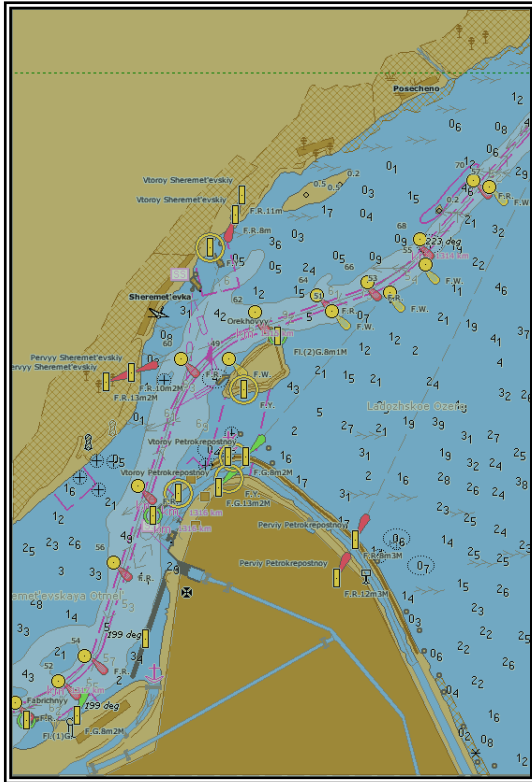
6. White Sea-Onega waterway
7. Kama waterway
8. Yenissey waterway
9. Lena waterway
10. Northern Dvina waterway

11. Ob-Irtysh waterway
12. Ob waterway
13. Pechora waterway
14. Baikal-Angara waterway
15. Amur waterway

| IWW District | River Information Service | | |
|---|---------------------------|--------------------|-----|
| | FIS | TI (mainly VTS) | TM |
| European part of IWW of the Russian Federation | | | |
| 1. Moscow channel | YES | YES | YES |
| 2. Volga-Baltic | YES | YES | YES |
| 3. Azov-Don | YES | YES | YES |
| 4. Volga-Don | YES | YES | YES |
| 5. Volga | YES | YES | YES |
| 6. White Sea-Onega | YES | YES | YES |
| 7. Kama | YES | YES | YES |
| Siberian and Far-East part of IWW of the Russian Federation | | | |
| 8. Yenissey | YES | NO | YES |
| 9. Lena | YES | NO | NO |
| 10. Nothern Dvina | YES | NO | NO |
| 11. Ob-Irtysh | YES | NO | NO |
| 12. Ob | YES | NO | YES |
| 13. Pechora | YES | NO | NO |
| 14. Baikal-Angara | YES | NO | YES |
| 15.Amur | YES | NO | NO |

The main fields of development and implementation of the RIS technical services / RIS key technologies are:

- 1. production and distribution of ENC's;**
- 2. expanding of AIS shore network and installation of AIS ship stations;**
- 3. expanding of network of DGNSS reference stations (IALA beacons).**



Inland ECDIS - Electronic Chart Display and Information System for inland navigation

National Inland ENC's are available now for approx. 22000 rkm of the European part of Russian waterways and for approx. 39000 rkm of Siberian and Far East rivers. All Inland ENC's are produced according to S-57 ed. 3.1 Standard and national Regulation Documents for ENC's. Inland ECDIS Standard is not approved in the Russian Federation and is not used for ENC production.

Automatic Identification system AIS

Almost all Russian inland waterways of international importance ("E" waterways) are covered by an AIS shore-based network. But there is no significant AIS shore network in Siberia and Far East. All ships more than 300 gt, all passenger ships and tankers must be equipped with AIS Class A or B (CS, SO) complied with Recommendation ITU-R M.1371. Inland AIS Standard generally is not mandatory for Russian vessels, but is not forbidden.

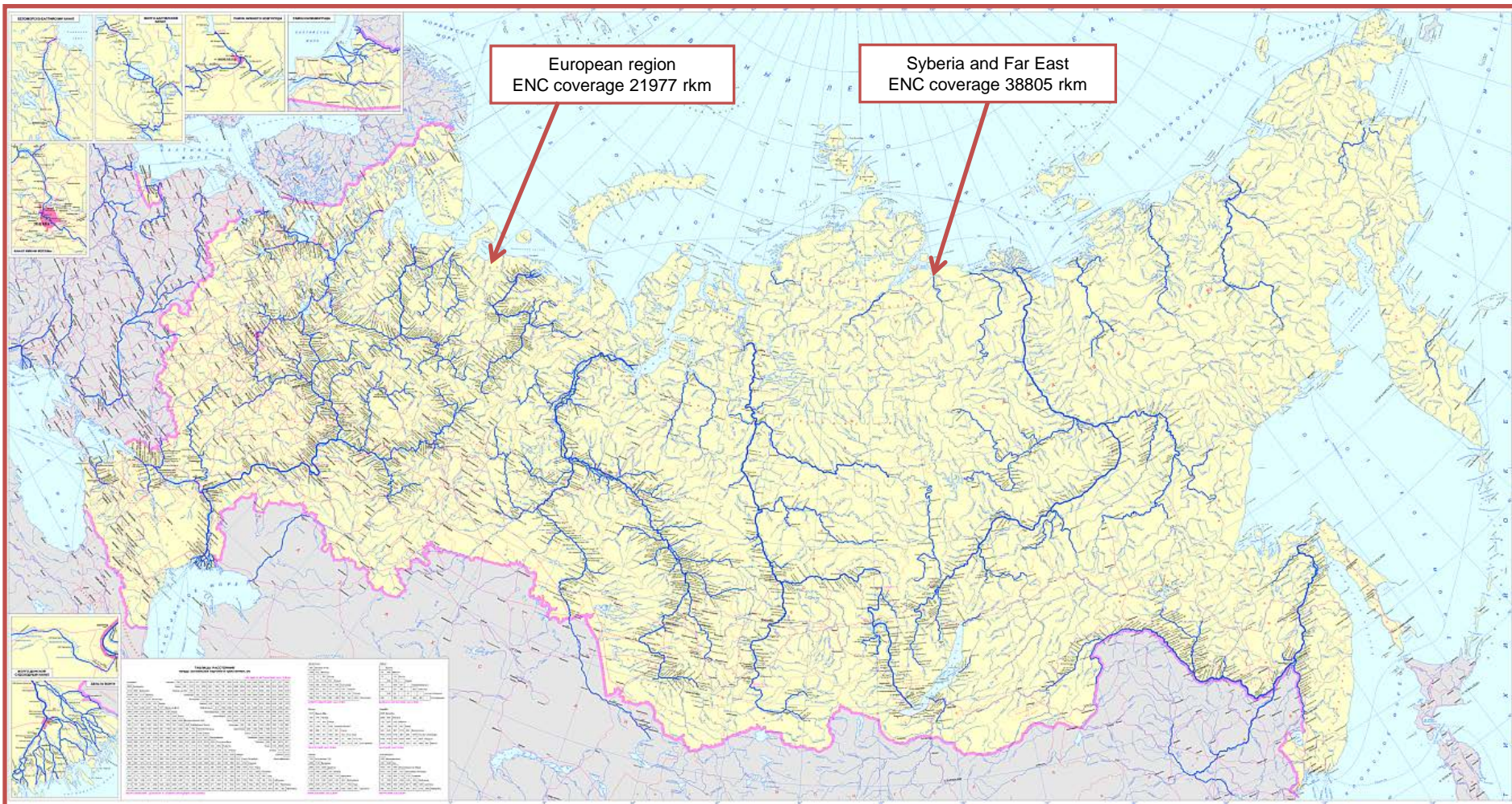
DGNSS service

All DGNSS reference stations (IALA beacons) transmit corrections for both GLONASS and GPS positioning systems. The latest software also includes Galileo. The average efficient range of DGNSS reference stations is 250 km.

Main changes since 2011

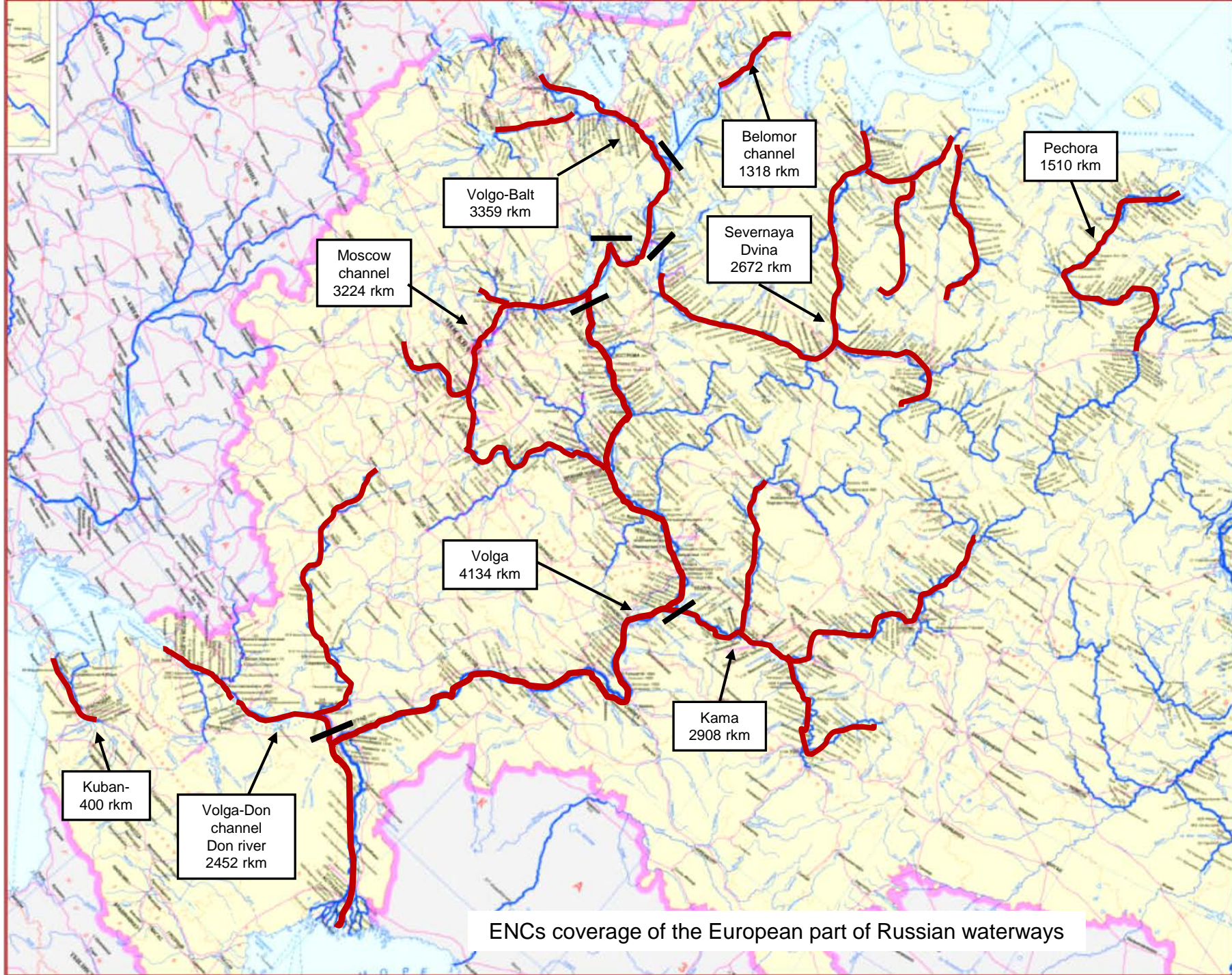
| RIS technical services / RIS key technologies | 2011 | | 2018 | |
|---|--------------|-----------|--------------|-----------|
| | European IWW | Asian IWW | European IWW | Asian IWW |
| ENC, rkm | 10 396 | 19 050 | 21977 | 38805 |
| AIS shore-based stations | 65 | | 116 | |
| DGNSS reference stations (IALA beacons) | 9 | 15 | 16 | 23 |

ENC coverage to the end of 2017



National IENCs are available for approx. 22000 rkm of the European part of Russian waterways and for approx. 38000 rkm of Siberian and Far East rivers.

All IENCs are produced according to S-57 ed. 3.1 Standard and national Regulation Documents for IENCs





ENCs coverage of Siberian and Far East IWW

LEGEND LÉGENDE УСЛОВНЫЕ ОБОЗНАЧЕНИЯ

Trunk waterways
Arêres principales
Магистральные водные пути

E 20

Other main waterways
Autres voies navigables principales
Другие основные водные пути

E 21

Branches
Branches
Отгалужения

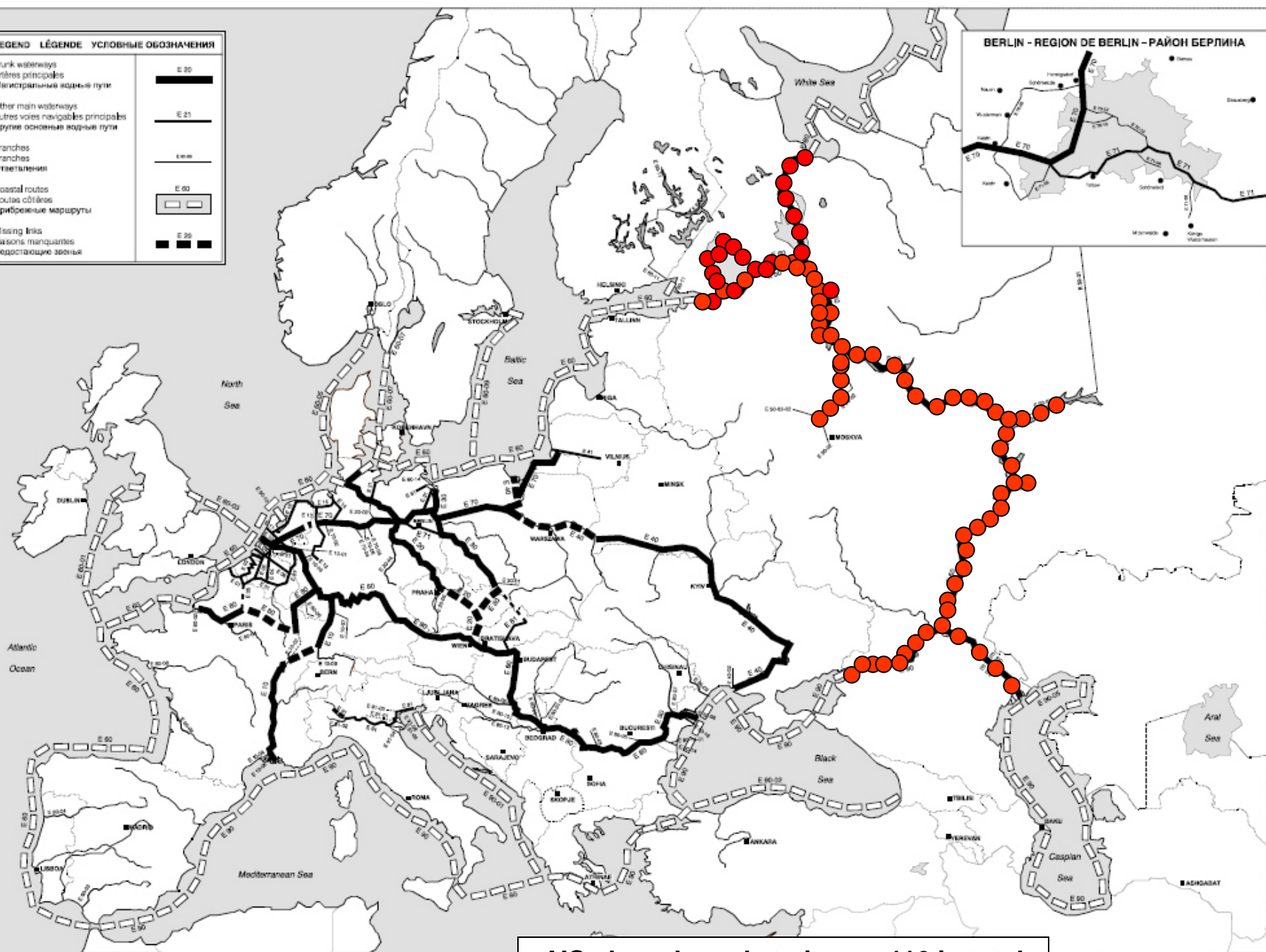
E 22

Coastal routes
Routes côtières
Прибрежные маршруты

E 23

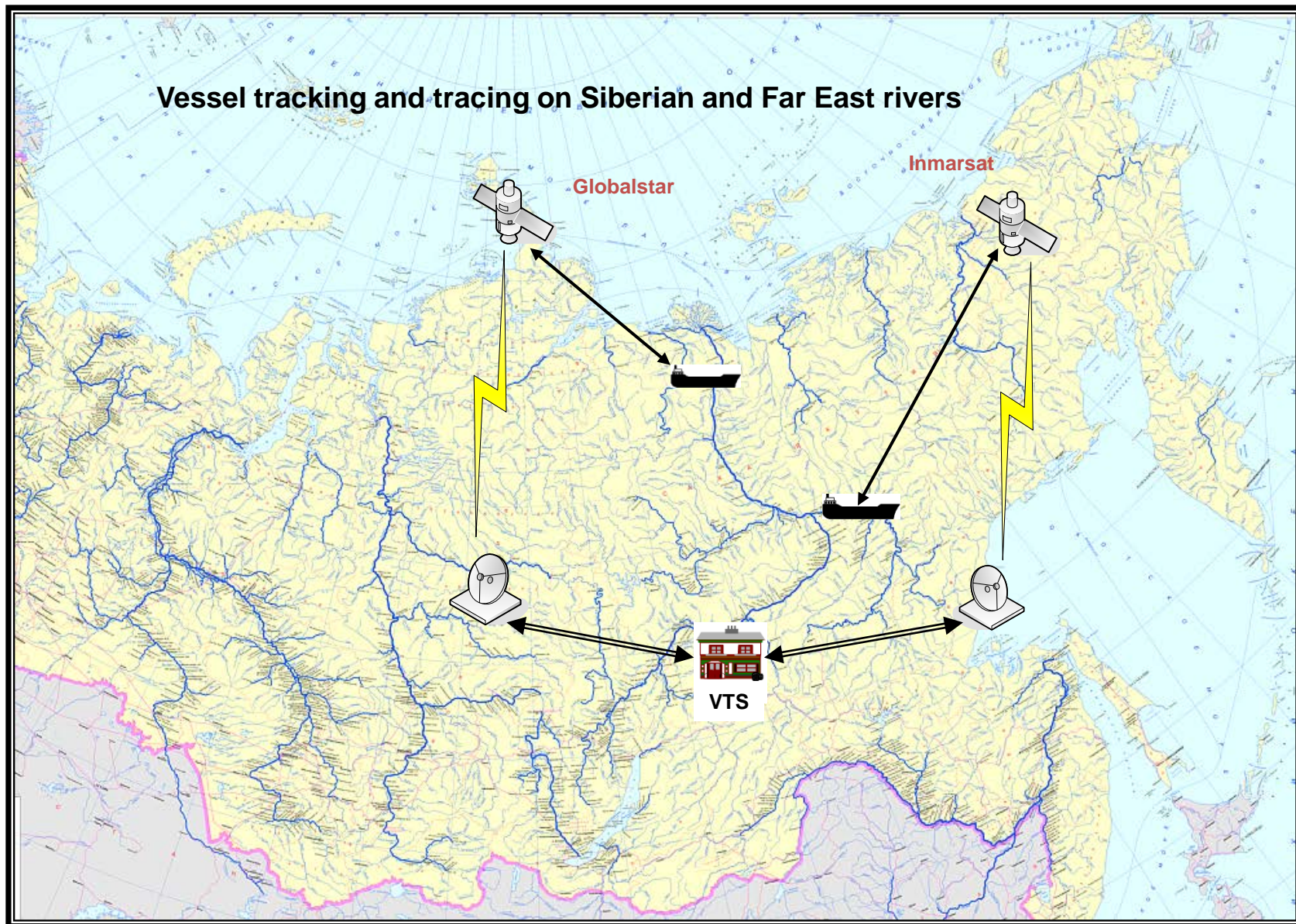
Missing links
Liaisons manquantes
Недостающие звенья

E 24



AIS shore-based stations - 116 in total

Vessel tracking and tracing on Siberian and Far East rivers



Conclusions drawn in Russia on the basis of the implementation of RIS during the recent years

Russian inland waterways differs significantly from each other in terms of shipping, such as natural conditions, state and dimensions of fairway, duration of navigation period, traffic and cargo transit capacity, population density and therefore distance between settlements etc.

European part of Russian IWW differs significantly from Asian IWW.

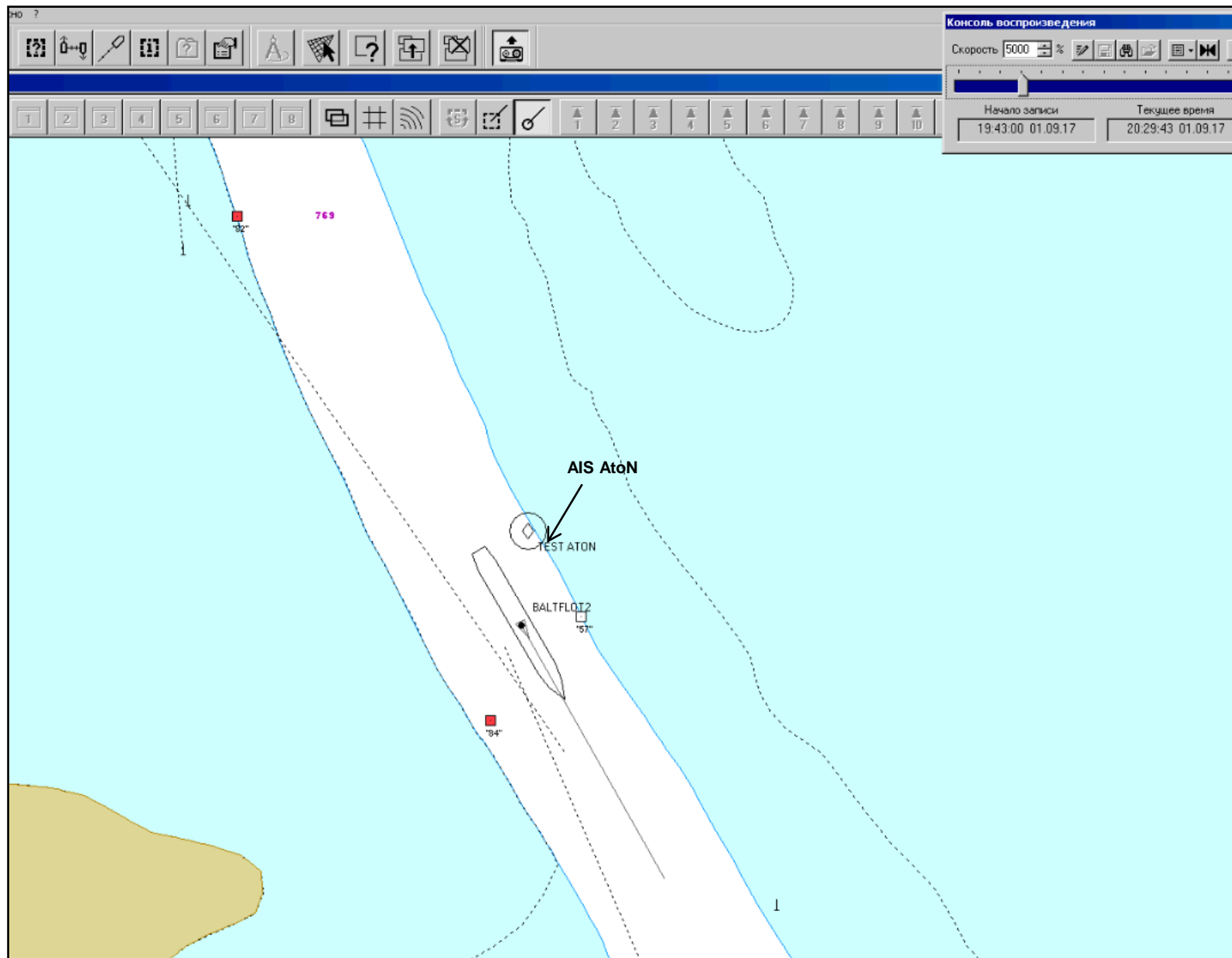
The main conclusions are as follows:

- RIS concept and standards could be implemented only in the Russian inland waterways of international importance ("E" waterways);
- The implementation of RIS is hampered due to lack of adequate national legislative base and long-term process of updating new standards

A yellow rectangular scroll with a blue border and decorative scroll-like ends on the left and right sides.

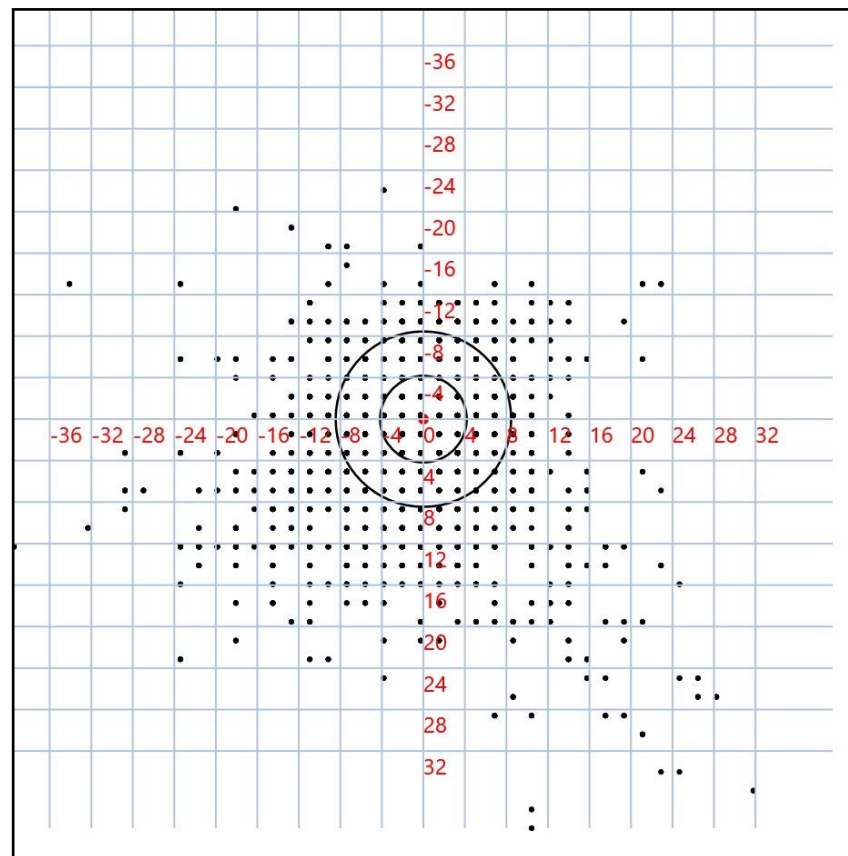
Testing of the «Real» AIS AtoN on the Volga-Baltic Waterway (2017)

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Testing of the «Real» AIS AtoN on the Volga-Baltic Waterway (2017)

Position accuracy



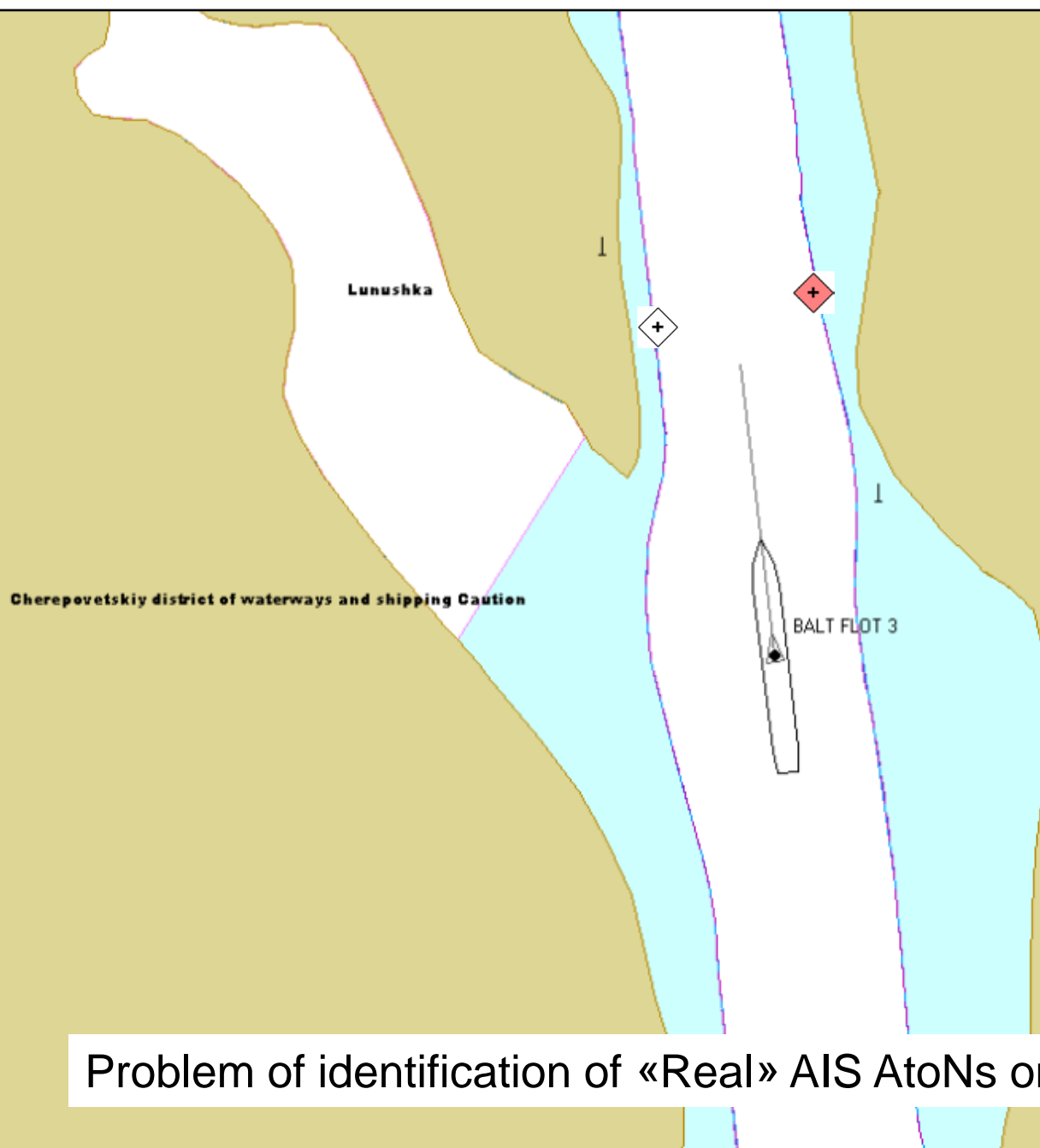
Name: **TEST ATON** MMSI: **992731001**

Readouts, total: **19567** Measuring run duration: **172:26:50**

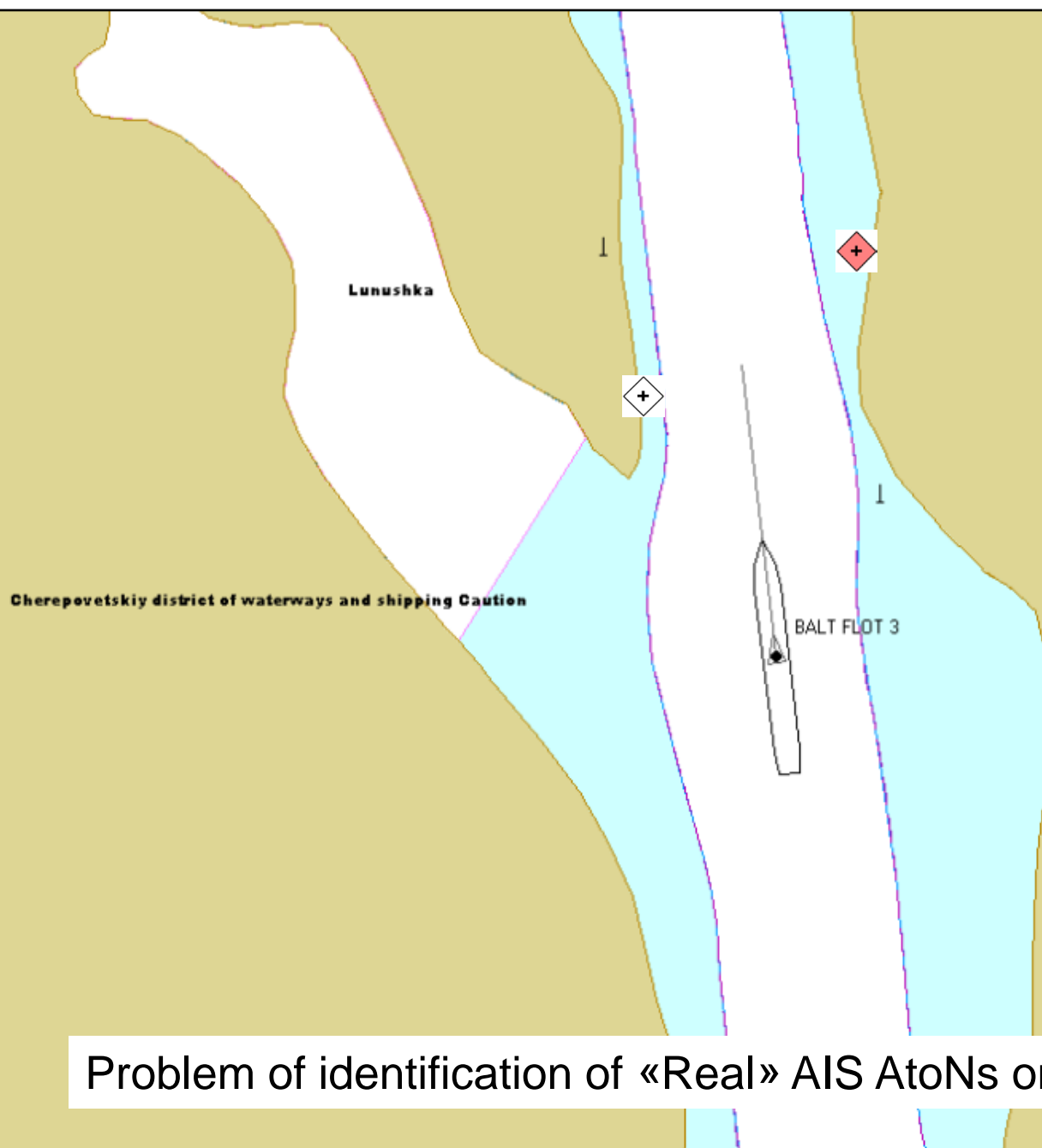
Root-mean-square deviation, m: $\sigma=4,285$ (68,2,%) $2\sigma = 8,570$ (95,4%)

Problem of identification of «Real» AIS AtoNs on narrow fairway

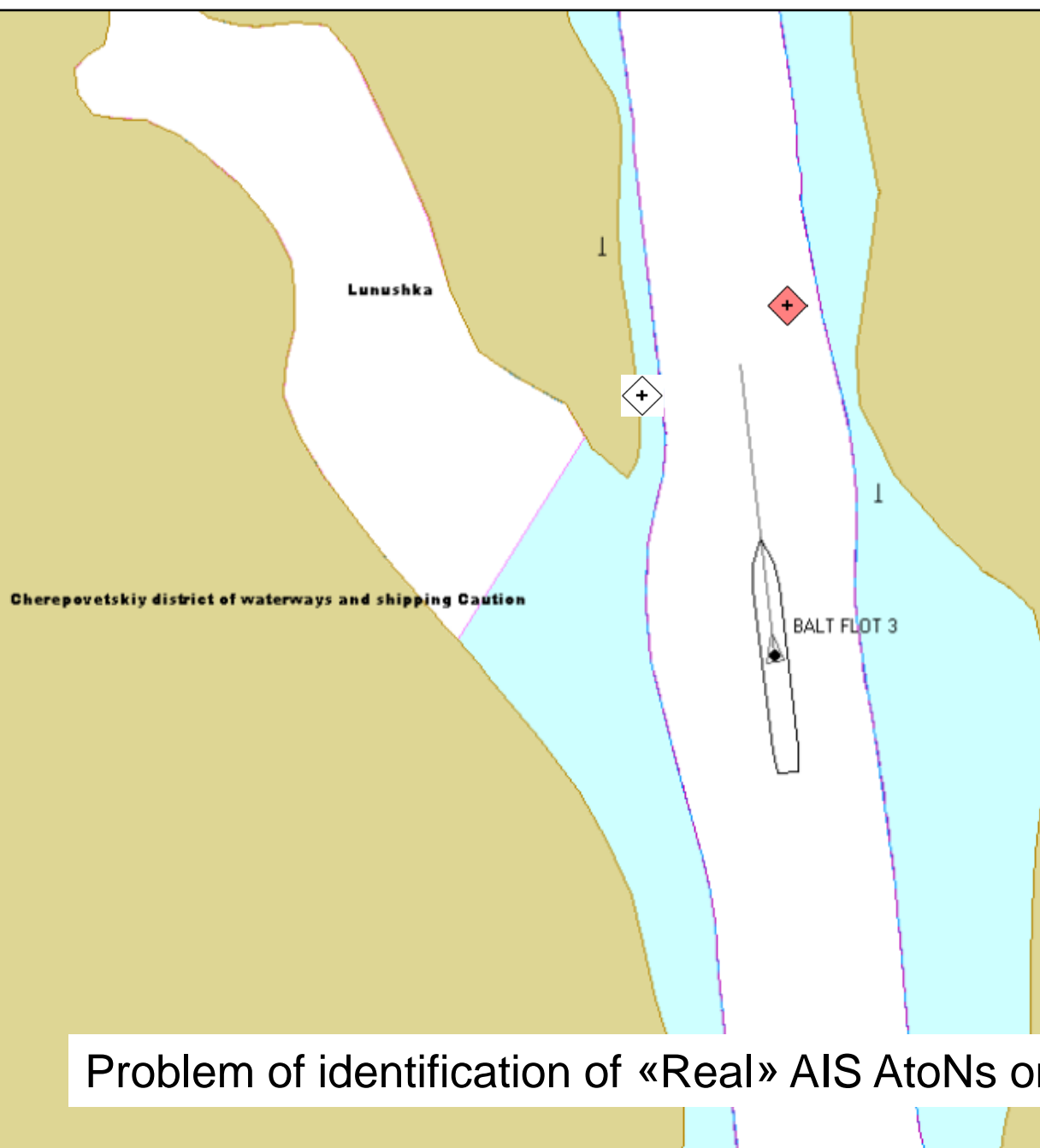




Problem of identification of «Real» AIS AtoNs on narrow fairway



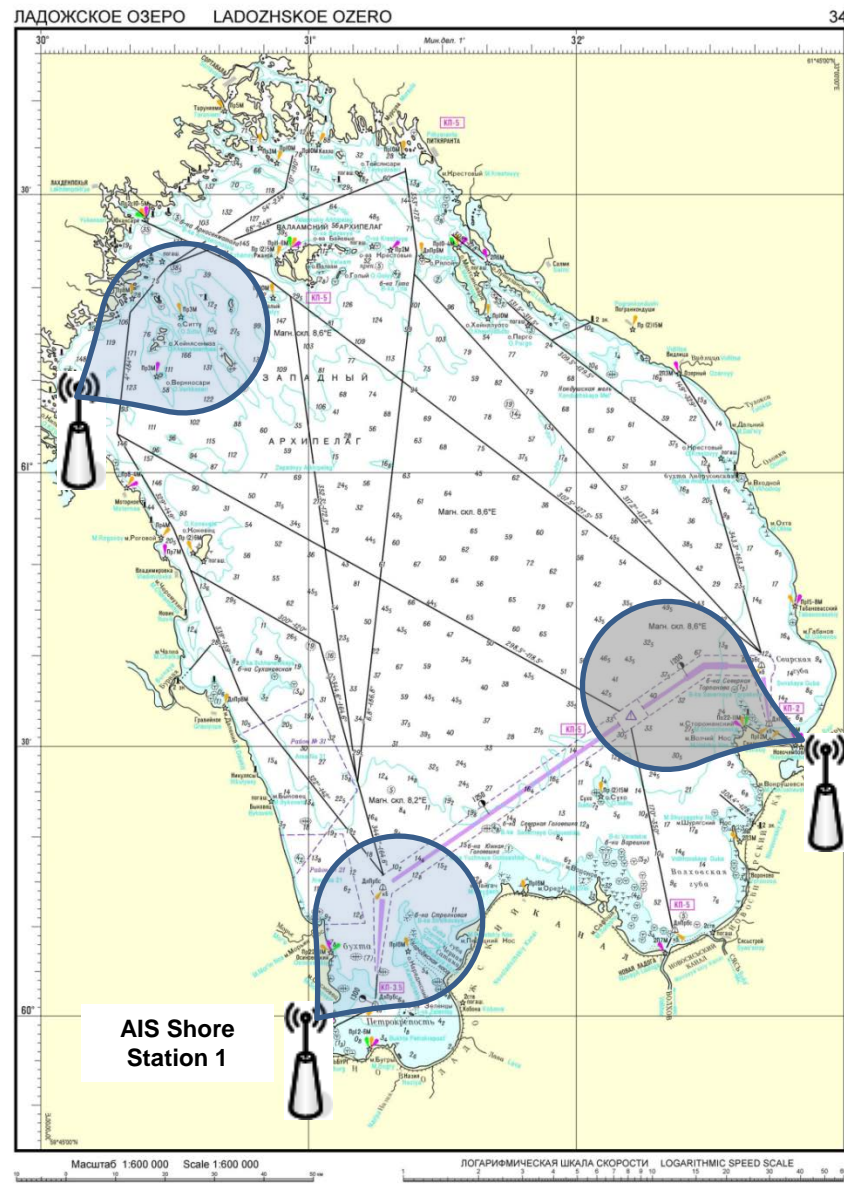
Problem of identification of «Real» AIS AtoNs on narrow fairway



Problem of identification of «Real» AIS AtoNs on narrow fairway

A yellow rectangular graphic with rounded corners and a blue border, styled to look like a scroll. It has a vertical strip on the left side and a small circular tab on the top right corner.

Testing of the Virtual AIS AtoNs network on Ladoga Lake



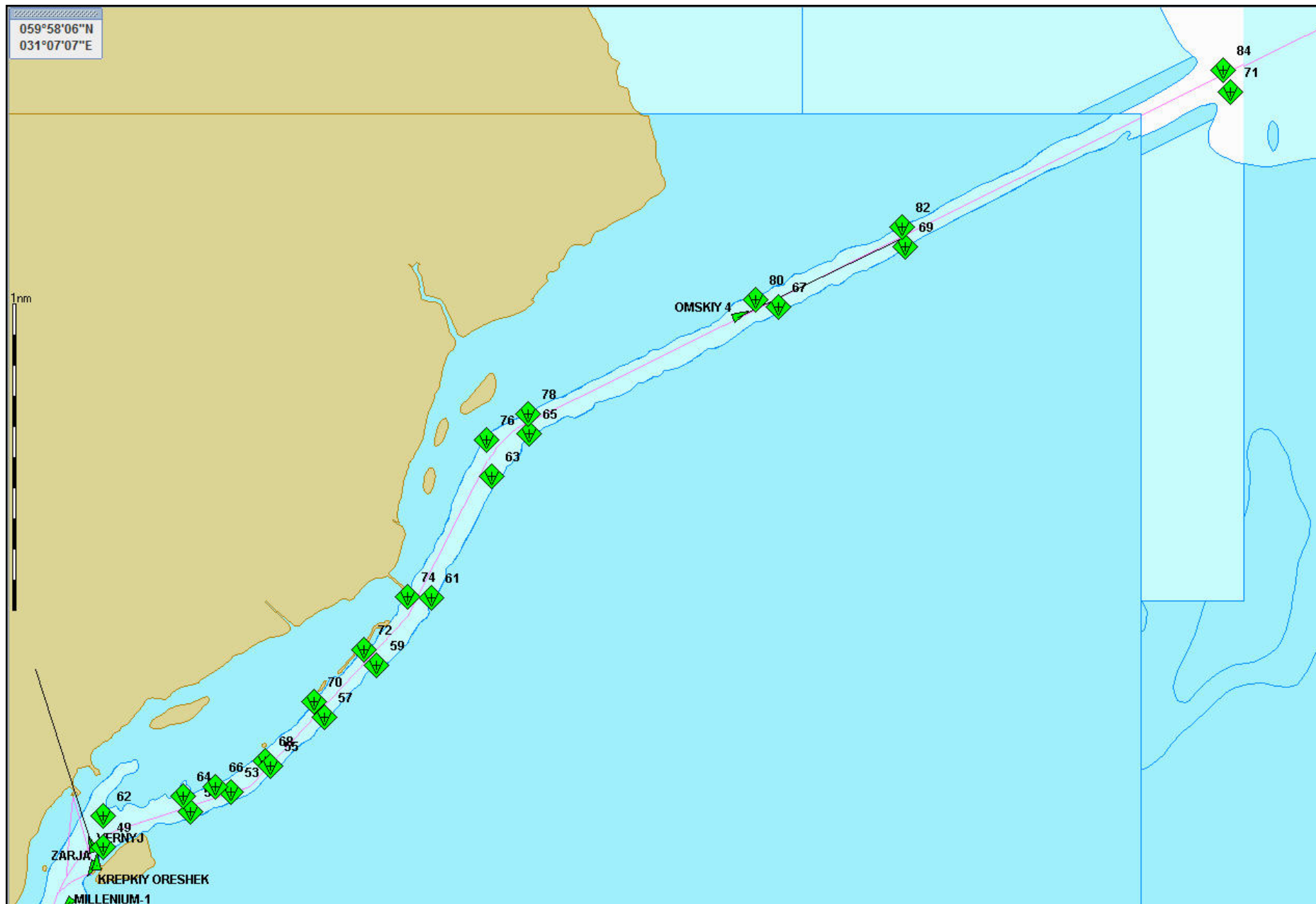
AIS Shore
Station 2

AIS Shore Station transmits
Aids-to-Navigation report
(message #21) every 3 min.

AIS Shore
Station 1

AIS Shore
Station 3

3 Virtual AtoN AIS test areas

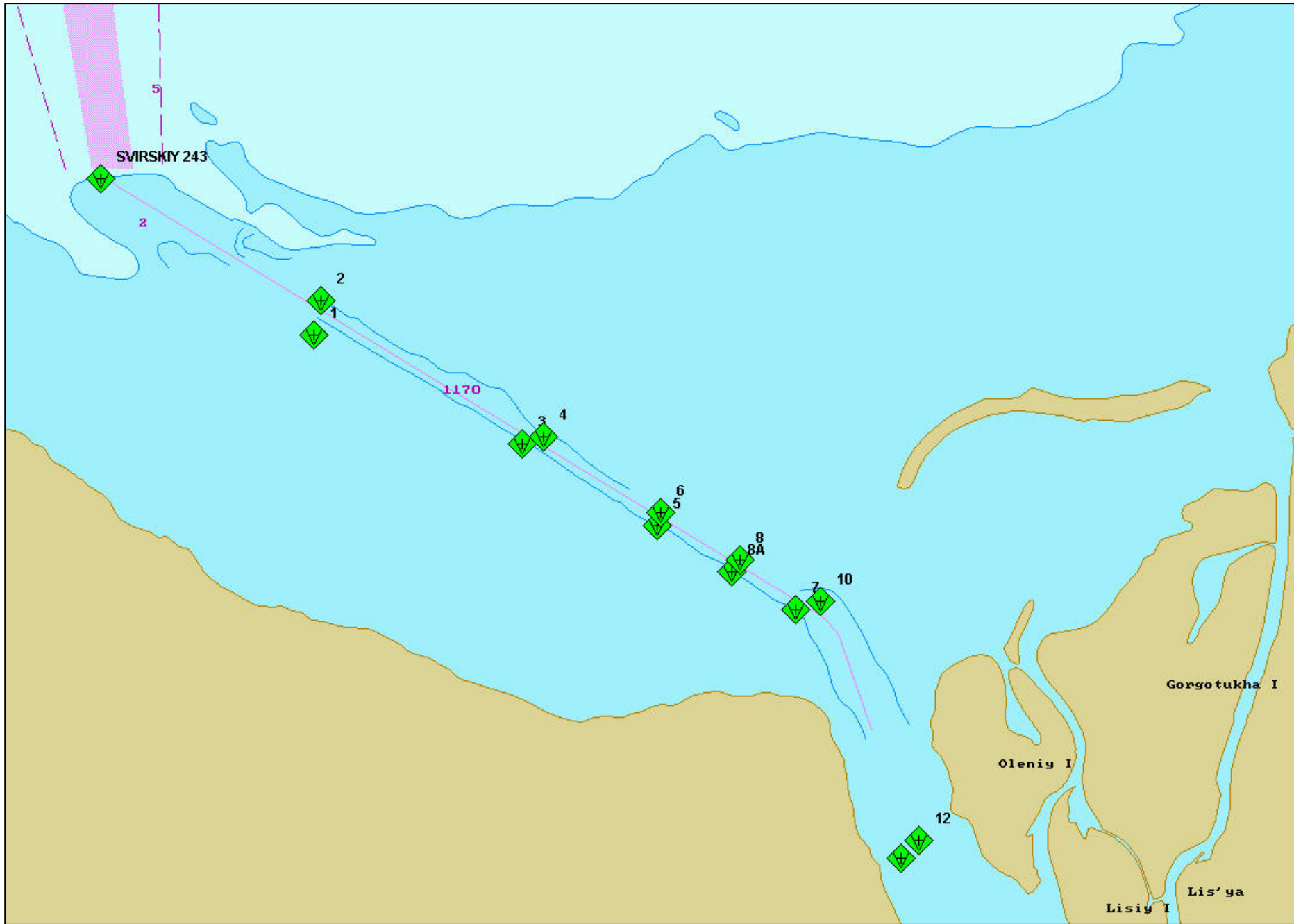


1st Virtual AtoN AIS test area (Neva river head): 25 virtual AtoNs

cb



2nd Virtual AtoN AIS test area (Vuoksa river outlet): 16 virtual AtoNs



3^d Virtual AtoN AIS test area (Svir river outlet): 14 virtual AtoNs

1:5000 x2.0

Тс 11:42:46 22.09.2017

Виртуальный буй 49
(Кошкинский фарватер)

GP (CCRP)

59°56.798'N
 031°01.702'E DIFF
 SOG 8.3 км/ч
 COG 338.1°
 HDG 339.6° Comp:
 ROT 7.9 ПБ

ZX506DA6 - WGS 84

Подходы к порту

1316.1 Км

Нева
 Кошкинский фарватер

1.078 км, Пр. 051.4°/Обр. 231.4°/КУ 040.3°

59°57.166'N 031°02.683'E

Тх «Бриз-1» 22.09.2017



МЕНЮ

Thank you for your kind
attention !



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